

FY 2012 Performance Plan Narrative

NASA's updated strategic goals are reflected below. Each is clearly defined and supported by multi-year Outcomes, Objectives, and Performance Goals. These in turn are supported by annual performance goals (APGs) that enhance NASA's ability to measure and report on the Agency's progress in achieving its strategic goals.

To better communicate the contribution of NASA's mission support elements, those performance measures are now structured as function-based, rather than Theme-based. Performance measures that were previously listed under Cross-Agency Support, including Education, information technology services, construction of facilities, human capital management, safety and mission assurance, launch services, and space communications have now been incorporated into the appropriate strategic goal.

The following table provides a summary of all of the Agency commitments identified in the preceding sections of this document.

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Measure #	Description	Contributing Program (s)	Contributing Theme
Strategic Goal 1	Extend and sustain human activities across the solar system.		
Outcome 1.1	Sustain the operation and full use of the International Space Station (ISS) and expand efforts to utilize the ISS as a National Laboratory for scientific, technological, diplomatic, and educational purposes and for supporting future objectives in human space exploration.		
Objective 1.1.1	Maintain resources (on orbit and on the ground) to operate and utilize the ISS.		
Performance Goal 1.1.1.1	Maintain capability for six on-orbit crew members.		
APG 1.1.1.1: ISS-12-1	In concert with the International Partners, maintain a continuous crew presence on the ISS by coordinating and managing resources, logistics, systems, and operational procedures.	International Space Station Program	International Space Station
Performance Goal 1.1.1.2	HPPG: Safely fly out the Space Shuttle manifest and retire the fleet.		
APG 1.1.1.2: SSP-12-1	Ensure the Space Shuttle Endeavour is ready for transport to its final display location.	Space Shuttle Program	Space Shuttle
Performance Goal 1.1.1.3	Provide cargo and crew transportation to support on-orbit crew members and utilization.		
APG 1.1.1.3: ISS-12-2	Fly the ISS spares, logistics, and utilization hardware as agreed to by the International Partners in the ISS transportation plan.	International Space Station Program	International Space Station
APG 1.1.1.3: ISS-12-3	Complete at least two flights to the ISS by U.S. developed cargo delivery systems.	International Space Station Program	International Space Station
Performance Goal 1.1.1.4	Maintain and operate a safe and functional ISS.		
APG 1.1.1.4: ISS-12-4	Provide 100 percent of planned on-orbit resources (including power, data, crew time, logistics, and accommodations) needed to support research.	International Space Station Program	International Space Station

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Measure #	Description	Contributing Program (s)	Contributing Theme
APG 1.1.1.4: ISS-12-5	Achieve zero Type-A (damage to property at least \$1 million or death) or Type-B (damage to property at least \$250 thousand or permanent disability or hospitalization of three or more persons) mishaps.	International Space Station Program	International Space Station
Objective 1.1.2	Advance engineering, technology, and research capabilities on the ISS.		
Performance Goal 1.1.2.1	Advance knowledge of long-duration human space flight by establishing agreements with organizations to enable full utilization of the ISS.		
APG 1.1.2.1: ISS-12-6	Accomplish a minimum of 90 percent of the on-orbit research objectives as established one month prior to a given increment, as sponsored by NASA, baselined for FY 2012.	International Space Station Program	International Space Station
Performance Goal 1.1.2.2	Conduct basic and applied biological and physical research to advance and sustain U.S. scientific expertise.		
APG 1.1.2.2: ERD-12-1	Conduct flight definition review for at least five flight experiments in fundamental space biology that were selected through the 2010 International Space Life Sciences Research Announcement.	Advanced Explorations Systems	Exploration Research and Development
APG 1.1.2.2: ERD-12-2	Deliver at least four physical sciences payloads for launch to the ISS.	Advanced Explorations Systems	Exploration Research and Development
APG 1.1.2.2: ERD-12-3	Conduct at least six experiments in combustion, fluids, or materials sciences on the ISS.	Advanced Explorations Systems	Exploration Research and Development
Outcome 1.2	Develop competitive opportunities for the commercial community to provide best value products and services to low Earth orbit and beyond.		
Objective 1.2.1	Enable the commercial sector to provide cargo and crew services to the International Space Station (ISS).		
Performance Goal 1.2.1.1	Develop competitive opportunities for the commercial community to provide best value products and services to low Earth orbit and beyond.		
APG 1.2.1.1: CS-12-1	Conclude the commercial crew transportation systems (CCDev2) agreements and make initial selections for the design, development, and demonstration of commercial crew transportation systems.	Commercial Crew	Commercial Spaceflight
Performance Goal 1.2.1.2	Develop and document evaluation and certification processes for an integrated commercial crew transportation system.		
APG 1.2.1.2: CS-12-2	Begin evaluation and certification of integrated commercial crew transportation system.	Commercial Crew	Commercial Spaceflight

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Measure #	Description	Contributing Program (s)	Contributing Theme
Outcome 1.3	Develop an integrated architecture and capabilities for safe crewed and cargo missions beyond low Earth orbit.		
Objective 1.3.1	Execute development of an integrated architecture to conduct human space exploration missions beyond low Earth orbit.		
Performance Goal 1.3.1.1	Complete design reviews for Space Launch System (SLS).		
APG 1.3.1.1: HEC-12-1	Successfully complete Space Launch System's (SLS) Systems Requirements Review (SRR).	Space Launch System	Human Exploration Capabilities
Performance Goal 1.3.1.2	Complete design reviews for Multi-Purpose Crew Vehicle (MPCV).		
APG 1.3.1.2: HEC-12-2	Complete testing of Multi-Purpose Crew Vehicle (MPCV) Ground Test Article (GTA).	Multi-Purpose Crew Vehicle	Human Exploration Capabilities
Objective 1.3.2	Develop a robust biomedical research portfolio to mitigate space human health risks.		
Performance Goal 1.3.2.1	Develop technologies that enable biomedical research and mitigate space human health risks associated with human space exploration missions.		
APG 1.3.2.1: ERD-12-4	Develop and release two NASA Research Announcements that solicit from the external biomedical research community the highest quality proposals to mitigate space human health risks.	Human Research	Exploration Research and Development
Performance Goal 1.3.2.2	Perform research to ensure that future human crews are protected from the deleterious effects of space radiation.		
APG 1.3.2.2: ERD-12-5	Release Acute Radiation Risk Model Version 2 to assess effects of solar particle events during exploration missions.	Human Research	Exploration Research and Development
Performance Goal 1.3.2.3	Develop exploration medical capabilities for long-duration space missions.		
APG 1.3.2.3: ERD-12-6	Deliver the next-generation space biomedical ultrasound device to enhance the Human Research Facility capability on the ISS through 2020.	Human Research	Exploration Research and Development
Objective 1.3.3	Identify hazards, opportunities and potential destinations, to support future safe and successful human space exploration missions.		
Performance Goal 1.3.3.1	Prioritize the knowledge of hazards, opportunities, and potential destinations for human space exploration that will be of use to future operations of an integrated architecture for human space exploration.		
APG 1.3.3.1: ERD-12-7	In collaboration with the Planetary Science Division, develop a plan to return data that will support the selection of destinations and reduce risk for future human space exploration missions.	Advanced Explorations Systems	Exploration Research and Development

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Measure #	Description	Contributing Program (s)	Contributing Theme
Strategic Goal 2	Expand scientific understanding of the Earth and the universe in which we live.		
Outcome 2.1	Advance Earth system science to meet the challenges of climate and environmental change.		
Objective 2.1.1	Improve understanding of and improve the predictive capability for changes in the ozone layer, climate forcing, and air quality associated with changes in atmospheric composition.		
Performance Goal 2.1.1.1	<i>Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.</i>		
APG 2.1.1.1: ES-12-1	Demonstrate planned progress in understanding and improving predictive capability for changes in the ozone layer, climate forcing, and air quality associated with changes in atmospheric composition. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Earth Science
Performance Goal 2.1.1.2	<i>By 2015, launch at least two missions in support of this objective.</i>		
APG 2.1.1.2: ES-12-2	Complete the Orbiting Carbon Observatory-2 (OCO-2) Systems Integration Review.	Earth System Science Pathfinder	Earth Science
APG 2.1.1.2: ES-12-3	Complete the Earth Venture 1 (EV-1) Investigation Readiness Reviews (IRR) and begin initial field campaigns.	Earth System Science Pathfinder	Earth Science
Objective 2.1.2	Enable improved predictive capability for weather and extreme weather events.		
Performance Goal 2.1.2.1	<i>Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.</i>		
APG 2.1.2.1: ES-12-4	Demonstrate planned progress in enabling improved predictive capability for weather and extreme weather events. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Earth Science
Performance Goal 2.1.2.2	<i>By 2015, launch at least two missions in support of this objective.</i>		
APG 2.1.2.2 ES-12-5	Complete the Global Precipitation Mission (GPM) Pre-Environmental Review.	Earth Systematic Missions	Earth Science
APG 2.1.2.2: ES-12-3	Complete the EV-1 Investigation Readiness Reviews (IRR) and begin initial field campaigns.	Earth System Science Pathfinder	Earth Science

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 2.1.3	Quantify, understand, and predict changes in Earth's ecosystems and biogeochemical cycles, including the global carbon cycle, land cover, and biodiversity.		
Performance Goal 2.1.3.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.1.3.1: ES-12-6	Demonstrate planned progress in quantifying, understanding, and predicting changes in Earth's ecosystems and biogeochemical cycles, including the global carbon cycle, land cover, and biodiversity. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Earth Science
Performance Goal 2.1.3.2	By 2015, launch at least two missions in support of this objective.		
APG 2.1.3.2 ES-12-7	Complete the Landsat Data Continuity Mission (LDCM) Systems Integration Review.	Earth Systematic Missions	Earth Science
APG 2.1.3.2: ES-12-2	Complete the Orbiting Carbon Observatory-2 (OCO-2) Systems Integration Review.	Earth System Science Pathfinder	Earth Science
APG 2.1.3.2: ES-12-3	Complete the Earth Venture 1 (EV-1) Investigation Readiness Reviews (IRR) and begin initial field campaigns.	Earth System Science Pathfinder	Earth Science
Objective 2.1.4	Quantify the key reservoirs and fluxes in the global water cycle and assess water cycle change and water quality.		
Performance Goal 2.1.4.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.1.4.1: ES-12-8	Demonstrate planned progress in quantifying the key reservoirs and fluxes in the global water cycle and assessing water cycle change and water quality. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Earth Science
Performance Goal 2.1.4.2	By 2015, launch at least two missions in support of this objective.		
APG 2.1.4.2: ES-12-5	Complete the Global Precipitation Mission (GPM) Pre-Environmental Review.	Earth Systematic Missions	Earth Science
APG 2.1.4.2: ES-12-9	Successfully complete the Soil Moisture Active-Passive (SMAP) Critical Design Review.	Earth Systematic Missions	Earth Science

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 2.1.5	Improve understanding of the roles of the ocean, atmosphere, land and ice in the climate system and improve predictive capability for its future evolution.		
Performance Goal 2.1.5.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.1.5.1: ES-12-10	Demonstrate planned progress in understanding the roles of ocean, atmosphere, land, and ice in the climate system and improving predictive capability for future evolution. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Earth Science
APG 2.1.5.1: ES-12-11	Achieve mission success criteria for the Ocean Surface Topography Mission (OSTM).	Earth Systematic Missions	Earth Science
Performance Goal 2.1.5.2	HPPG: Study Earth from space to understand climate change, weather, and human impact on our planet by launching at least two missions by 2015.		
APG 2.1.5.2: ES-12-12	Launch the National Polar-orbiting Operational Environmental Satellite System (NPOESS) Preparatory Project (NPP).	Earth Systematic Missions	Earth Science
Performance Goal 2.1.5.3	By 2015, launch at least three missions in support of this objective.		
APG 2.1.5.3: ES-12-13	Complete the ICESat-2 Preliminary Design Review.	Earth System Science Pathfinder	Earth Science
APG 2.1.5.3: ES-12-2	Complete the Orbiting Carbon Observatory-2 (OCO-2) Systems Integration Review.	Earth System Science Pathfinder	Earth Science
Objective 2.1.6	Characterize the dynamics of Earth's surface and interior and form the scientific basis for the assessment and mitigation of natural hazards and response to rare and extreme events.		
Performance Goal 2.1.6.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.1.6.1: ES-12-14	Demonstrate planned progress in characterizing the dynamics of Earth's surface and interior and forming the scientific basis for the assessment and mitigation of natural hazards and response to rare and extreme events. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Earth Science
Performance Goal 2.1.6.2	By 2015, launch at least one mission in support of this objective.		
APG 2.1.6.2: ES-12-7	Complete the Landsat Data Continuity Mission (LDCM) Systems Integration Review.	Earth Systematic Missions	Earth Science

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 2.1.7	Enable the broad use of Earth system science observations and results in decision-making activities for societal benefits.		
Performance Goal 2.1.7.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.1.7.1: ES-12-15	Advance at least 25 percent of decision-support projects at least one Applications Readiness Level.	Applied Sciences	Earth Science
APG 2.1.7.1: ES-12-16	Increase the number of science data products delivered to Earth Observing System Data and Information System (EOSDIS) users.	Earth Science Research	Earth Science
APG 2.1.7.1: ES-12-17	Maintain a high level of customer satisfaction, as measured by exceeding the most recently available federal government average rating of the Customer Satisfaction Index.	Earth Science Research	Earth Science
Outcome 2.2	Understand the Sun and its interactions with Earth and the solar system.		
Objective 2.2.1	Improve understanding of the fundamental physical processes of the space environment from the Sun to Earth, to other planets, and beyond to the interstellar medium.		
Performance Goal 2.2.1.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.2.1.1: HE-12-1	Demonstrate planned progress in understanding the fundamental physical processes of the space environment from the Sun to Earth, to other planets, and beyond to the interstellar medium. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Heliophysics
Performance Goal 2.2.1.2	By 2015, launch two missions in support of this outcome.		
APG 2.2.1.2: HE-12-2	Complete the Magnetospheric MultiScale (MMS) Systems Integration Review.	Solar Terrestrial Probes	Heliophysics
APG 2.2.1.2: HE-12-3	Complete the Geospace Radiation Belt Storm Probes Launch Readiness Review.	Living with a Star	Heliophysics
Objective 2.2.2	Improve understanding of how human society, technological systems, and the habitability of planets are affected by solar variability interacting with planetary magnetic fields and atmospheres.		
Performance Goal 2.2.2.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.2.2.1: HE-12-4	Demonstrate planned progress in understanding how human society, technological systems, and the habitability of planets are affected by solar variability interacting with planetary magnetic fields and atmospheres. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Heliophysics

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Measure #	Description	Contributing Program (s)	Contributing Theme
Performance Goal 2.2.2.2	<i>By 2015, launch two missions in support of this outcome.</i>		
APG 2.2.2.2: HE-12-2	Complete the Magnetospheric MultiScale (MMS) Systems Integration Review.	Solar Terrestrial Probes	Heliophysics
APG 2.2.2.2: HE-12-3	Complete the Geospace Radiation Belt Storm Probes Launch Readiness Review.	Living with a Star	Heliophysics
Objective 2.2.3	Maximize the safety and productivity of human and robotic explorers by developing the capability to predict extreme and dynamic conditions in space.		
Performance Goal 2.2.3.1	<i>Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.</i>		
APG 2.2.3.1: HE-12-5	Demonstrate planned progress in maximizing the safety and productivity of human and robotic explorers by developing the capability to predict the extreme and dynamic conditions in space. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Heliophysics
Performance Goal 2.2.3.2	<i>By 2017, launch at least two missions in support of this outcome.</i>		
APG 2.2.3.2: HE-12-3	Complete the Geospace Radiation Belt Storm Probes Launch Readiness Review.	Living with a Star	Heliophysics
Outcome 2.3	Ascertain the content, origin, and evolution of the solar system and the potential for life elsewhere.		
Objective 2.3.1	Inventory solar system objects and identify the processes active in and among them.		
Performance Goal 2.3.1.1	<i>Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.</i>		
APG 2.3.1.1: PS-12-1	Demonstrate planned progress in inventorying solar system objects and identifying the processes active in and among them. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Planetary Science
Performance Goal 2.3.1.2	<i>By 2015, launch at least two missions in support of this outcome.</i>		
APG 2.3.1.2: PS-12-2	Complete the New Frontiers 3 Preliminary Design Review.	New Frontiers	Planetary Science
APG 2.3.1.2: PS-12-3	Complete the Discovery 12 mission concept studies.	Discovery	Planetary Science

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 2.3.2	Improve understanding of how the Sun's family of planets, satellites, and minor bodies originated and evolved.		
Performance Goal 2.3.2.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.3.2.1: PS-12-4	Demonstrate planned progress in understanding how the Sun's family of planets, satellites, and minor bodies originated and evolved. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Planetary Science
APG 2.3.2.1: PS-12-5	Complete MESSENGER mission success criteria.	Discovery	Planetary Science
Performance Goal 2.3.2.2	By 2015, launch at least three missions in support of this outcome.		
APG 2.3.2.2: PS-12-2	Complete the New Frontiers 3 Preliminary Design Review.	New Frontiers	Planetary Science
APG 2.3.2.2: PS-12-6	Complete the Lunar Atmosphere and Dust Environment Explorer (LADEE) Systems Integration Review.	Lunar Quest Program	Planetary Science
Objective 2.3.3	Improve understanding of the processes that determine the history and future of habitability of environments on Mars and other solar system bodies.		
Performance Goal 2.3.3.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.3.3.1 : PS-12-7	Demonstrate planned progress in understanding the processes that determine the history and future of habitability of environments on Mars and other solar system bodies. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Planetary Science
Performance Goal 2.3.3.2	By 2015, launch at least two missions in support of this outcome.		
APG 2.3.3.2: PS-12-10	Complete the Mars 16 Mission Confirmation Review.	Mars Exploration	Planetary Science
APG 2.3.3.2: PS-12-8	Complete the Mars Science Laboratory (MSL) Launch Readiness Review.	Mars Exploration	Planetary Science
APG 2.3.3.2: PS-12-9	Complete the Mars Atmosphere and Volatile Evolution Mission (MAVEN) Systems Integration Review.	Mars Exploration	Planetary Science

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 2.3.4	Improve understanding of the origin and evolution of Earth's life and biosphere to determine if there is or ever has been life elsewhere in the universe.		
Performance Goal 2.3.4.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.3.4.1 : PS-12-11	Demonstrate planned progress in understanding the origin and evolution of life on Earth and throughout the biosphere to determine if there is or ever has been life elsewhere in the universe. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Planetary Science
Objective 2.3.5	Identify and characterize small bodies and the properties of planetary environments that pose a threat to terrestrial life or exploration or provide potentially exploitable resources.		
Performance Goal 2.3.5.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.3.5.1: PS-12-12	Demonstrate planned progress in identifying and characterizing small bodies and the properties of planetary environments that pose a threat to terrestrial life or exploration or provide potentially exploitable resources. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Planetary Science
Performance Goal 2.3.5.2	Return data for selection of destinations in order to lower risk for human space exploration beyond low Earth orbit.		
APG 2.3.5.2: PS-12-13	Demonstrate planned progress in characterizing potentially hazardous objects that are possible destinations for future human space exploration.	Multiple Programs	Planetary Science
Outcome 2.4	Discover how the universe works, explore how it began and evolved, and search for Earth-like planets.		
Objective 2.4.1	Improve understanding of the origin and destiny of the universe, and the nature of black holes, dark energy, dark matter, and gravity.		
Performance Goal 2.4.1.1	Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.		
APG 2.4.1.1: AS-12-1	Demonstrate planned progress in understanding the origin and destiny of the universe, and the nature of black holes, dark energy, dark matter, and gravity. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Astrophysics

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Measure #	Description	Contributing Program (s)	Contributing Theme
Performance Goal 2.4.1.2	<i>By 2015, launch at least one mission in support of this outcome.</i>		
APG 2.4.1.2: AS-12-2	Complete the Nuclear Spectroscopic Telescope Array (NuSTAR) Launch Readiness Review.	Astrophysics Explorer	Astrophysics
Objective 2.4.2	Improve understanding of the many phenomena and processes associated with galaxy, stellar, and planetary system formation and evolution from the earliest epochs to today.		
Performance Goal 2.4.2.1	<i>Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.</i>		
APG 2.4.2.1: AS-12-3	Demonstrate planned progress in understanding the many phenomena and processes associated with galaxy, stellar, and planetary system formation and evolution from the earliest epochs to today. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Astrophysics
Performance Goal 2.4.2.2	<i>Design and assemble James Webb Space Telescope (JWST).</i>		
APG 2.4.2.2: JWST-12-1	Begin integration of James Webb Space Telescope (JWST) flight optics into Optical Telescope Element (OTE).	James Webb Space Telescope	James Webb Space Telescope
Performance Goal 2.4.2.3	<i>Develop and operate an airborne infrared astrophysics observatory.</i>		
APG 2.4.2.3: AS-12-4	Initiate the Stratospheric Observatory for Infrared Astronomy (SOFIA) Segment 3 Aircraft modifications and upgrades.	Cosmic Origins	Astrophysics
Objective 2.4.3	Generate a census of extra-solar planets and measure their properties.		
Performance Goal 2.4.3.1	<i>Provide national scientific capabilities through necessary skilled researchers and supporting knowledge base.</i>		
APG 2.4.3.1: AS-12-5	Demonstrate planned progress in generating a census of extra-solar planets and measuring their properties. Progress relative to the objectives in NASA's 2010 Science Plan will be evaluated by external expert review.	Multiple Programs	Astrophysics

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Measure #	Description	Contributing Program (s)	Contributing Theme
Strategic Goal 3	Create the innovative new space technologies for our exploration, science, and economic future.		
Outcome 3.1	Sponsor early-stage innovation in space technologies in order to improve the future capabilities of NASA, other government agencies, and the aerospace industry.		
Objective 3.1.1	Create a pipeline of new low Technology Readiness Levels (TRL) innovative concepts and technologies for future NASA missions and national needs.		
Performance Goal 3.1.1.1	Explore revolutionary aerospace concepts, with an initial research phase for preliminary assessment of a broad range of ideas, and a second phase for further development of the most promising concepts.		
APG 3.1.1.1: ST-12-1	Initiate Phase II studies to further develop two of the most promising prior (FY 2011 and predecessor NASA Institute for Advanced Concepts (NIAC)) Phase I concepts.	Crosscutting Space Technology Development	Space Technology
Performance Goal 3.1.1.2	Provide cash prize incentives to non-traditional sources for innovations of interest and value to NASA and the Nation.		
APG 3.1.1.2: ST-12-2	Conduct at least three Centennial Challenges competitions.	Crosscutting Space Technology Development	Space Technology
Performance Goal 3.1.1.3	Establish and maintain a culture of innovation at each of the 10 NASA Centers through the development of new Center ideas and technologies.		
APG 3.1.1.3: ST-12-3	Twenty innovative projects will be initiated across the NASA Centers.	Crosscutting Space Technology Development	Space Technology
Performance Goal 3.1.1.4	Increase the proportion of Small Business Innovation Research and Small Business Technology Transfer (Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR)) technologies successfully infused into NASA programs/projects.		
APG 3.1.1.4: ST-12-4	At least 25 percent of the Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) Phase II technology projects awarded between 2007-2011 will be infused into NASA programs and projects.	SBIR and STTR	Space Technology

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Measure #	Description	Contributing Program (s)	Contributing Theme
Performance Goal 3.1.1.5	<i>Increase the Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) Phase III contracts initiated or expanded.</i>		
APG 3.1.1.5: ST-12-5	At least 40 of the Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) technologies will be advanced to Phase III (received non-SBIR/STTR funding).	SBIR and STTR	Space Technology
Performance Goal 3.1.1.6	<i>Accelerate the development of push technologies to support the future space, science and exploration needs of NASA, other government agencies, and the commercial space sector.</i>		
APG 3.1.1.6: ST-12-6	Complete 100 research plans.	Crosscutting Space Technology Development	Space Technology
Outcome 3.2	Infuse game changing and crosscutting technologies throughout the Nation's space enterprise to transform the Nation's space mission capabilities.		
Objective 3.2.1	Prove the technical feasibility of potentially disruptive new space technologies for future missions.		
Performance Goal 3.2.1.1	<i>Transition developed game changing technologies to the technology demonstration programs or directly to Mission Directorates for mission insertion.</i>		
APG 3.2.1.1: ST-12-7	Initiate five game changing technology projects.	Crosscutting Space Technology Development	Space Technology
Objective 3.2.2	Spur the development of routine, low-cost access to space through small payloads and satellites.		
Performance Goal 3.2.2.1	<i>Mature technologies that enable small satellites to provide game changing capabilities for the government and commercial space sectors.</i>		
APG 3.2.2.1: ST-12-8	Initiate development of at least two new technologies with game changing potential for small satellites.	Crosscutting Space Technology Development	Space Technology
Objective 3.2.3	Demonstrate new space technologies and infuse them into future science and exploration small satellite missions and/or commercial use.		
Performance Goal 3.2.3.1	<i>Demonstrate small satellite capabilities with game changing and crosscutting potential for the government and commercial space sectors.</i>		
APG 3.2.3.1: ST-12-9	Initiate at least one new small satellite mission that will demonstrate game changing or crosscutting technologies in space.	Crosscutting Space Technology Development	Space Technology

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 3.2.4	Demonstrate new space technologies and infuse them into missions.		
Performance Goal 3.2.4.1	<i>Infuse game changing and crosscutting technologies into future NASA missions through flight or relevant environment demonstrations.</i>		
APG 3.2.4.1: ST-12-10	Complete preliminary design of at least two system-level technologies for flight or relevant environment demonstration.	Crosscutting Space Technology Development	Space Technology
Objective 3.2.5	Provide flight opportunities and relevant environments to demonstrate new space technologies.		
Performance Goal 3.2.5.1	<i>Perform sub-orbital, simulated zero-gravity and other space analog flight opportunities to develop and demonstrate emerging ideas and technologies.</i>		
APG 3.2.5.1: ST-12-11	Select and fly technology payloads from NASA, other government agencies, industry, and academia using flight services procured from at least three commercial reusable suborbital and parabolic platform providers.	Crosscutting Space Technology Development	Space Technology
Outcome 3.3	Develop and demonstrate the critical technologies that will make NASA's exploration, science, and discovery missions more affordable and more capable.		
Objective 3.3.1	Demonstrate in-space operations of robotic assistants working with crew.		
Performance Goal 3.3.1.1	<i>Demonstrate robotic technologies that support in-space operations, scientific discovery, and work as assistants with the crew.</i>		
APG 3.3.1.1: ERD-12-8	Demonstrate Robonaut 2 assisting the crew to perform tasks inside the ISS.	Exploration Technology Development	Space Technology
Objective 3.3.2	Develop and demonstrate critical technologies for safe and affordable cargo and human space exploration missions beyond low Earth orbit.		
Performance Goal 3.3.2.1	<i>Develop advanced spacesuits to improve the ability of astronauts to conduct Extra-Vehicular Activity (EVA) operations in space including assembly and service of in-space systems and exploration of surfaces of the Moon, Mars, near-Earth objects (NEOs), and other small bodies.</i>		
APG 3.3.2.1: ERD-12-9	Initiate tests of Extra-Vehicular Activity (EVA) Portable Life Support System (PLSS) technologies in a vacuum chamber environment.	Advanced Explorations Systems	Exploration Research and Development

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Measure #	Description	Contributing Program (s)	Contributing Theme
Performance Goal 3.3.2.2	<i>Develop technologies and mission concepts for demonstrating in-space cryogenic propellant storage and transfer making exploration and science missions more affordable and capable.</i>		
APG 3.3.2.1: ST-12-12	Test automated fluid couplings for cryogenic propellant transfer to support Cryogenic Propellant Storage And Transfer (CRYOSTAT) systems requirements.	Exploration Technology Development	Space Technology
Outcome 3.4	Facilitate the transfer of NASA technology and engage in partnerships with other government agencies, industry, and international entities to generate U.S. commercial activity and other public benefits.		
Objective 3.4.1	Promote and develop innovative technology partnerships among NASA, U.S. industry, and other sectors for the benefit of Agency programs and national interests.		
Performance Goal 3.4.1.1	<i>Establish 12 technology-related significant partnerships that create value for programs and projects. Track both quantitative dollar value and qualitative benefits to NASA (e.g., reduced volume or mass, improved safety) per year.</i>		
APG 3.4.1.1: ST-12-13	Establish at least 12 technology-related significant partnerships during FY 2012.	Partnership Development and Strategic Integration	Space Technology
Performance Goal 3.4.1.2	<i>Complete 30 technology transfer agreements with the commercial and academic community through such mechanisms as licenses, software use agreements, facility use agreements, and Space Act Agreements per year.</i>		
APG 3.4.1.2: ST-12-14	Complete at least 30 technology transfer agreements during FY 2012.	Partnership Development and Strategic Integration	Space Technology
Performance Goal 3.4.1.3	<i>Successful application of Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) technologies into commercial products or services.</i>		
APG 3.4.1.3: ST-12-15	Greater than 35 percent of the Phase II Small Business Innovation Research and Small Business Technology Transfer (SBIR/STTR) technology projects awarded between 2007-2011 will be transferred into commercial products or services.	SBIR and STTR	Space Technology

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Measure #	Description	Contributing Program (s)	Contributing Theme
Performance Goal 3.4.1.4	Document 40-50 of the most notable examples of successful transfer and commercialization of NASA-derived technology per year and publish in Spinoff annually.		
APG 3.4.1.4: ST-12-16	Document at least 40 notable technology transfer successes in NASA's Spinoff publication.	Partnership Development and Strategic Integration	Space Technology
Performance Goal 3.4.1.5	Document, coordinate, and prioritize Agency-level technology strategic investments to ensure NASA has a balanced portfolio of both near-term NASA mission (pull) technologies and longer-term transformational (push) technologies that benefit both Agency programs and national needs.		
APG 3.4.1.5: ST-12-17	Ensure that 75 percent of all NASA technology projects are recorded in the portfolio database and are analyzed against the prioritizations in the space technology roadmaps.	Partnership Development and Strategic Integration	Space Technology
Strategic Goal 4	Advance aeronautics research for societal benefit.		
Outcome 4.1	Develop innovative solutions and advanced technologies through a balanced research portfolio to improve current and future air transportation.		
Objective 4.1.1	Develop advanced technologies to improve the overall safety of the future air transportation system.		
Performance Goal 4.1.1.1	Transfer knowledge to the aviation community to better manage safety in aviation.		
APG 4.1.1.1: AR-12-1	Develop first generation engine icing performance degradation parametric simulation capability.	Aviation Safety	Aeronautics
APG 4.1.1.1: AR-12-2	Provide static code analysis techniques for certification.	Aviation Safety	Aeronautics
APG 4.1.1.1: AR-12-3	Develop concept of operations for an integrated vehicle health assurance system.	Aviation Safety	Aeronautics
APG 4.1.1.1: AR-12-4	Demonstrate algorithm to predict at least three anomalies in massive datasets.	Aviation Safety	Aeronautics
Objective 4.1.2	Develop innovative solutions and technologies to meet future capacity and mobility requirements of the Next Generation Air Transportation System (NextGen).		
Performance Goal 4.1.2.1	HPPG: Increase efficiency and throughput of aircraft operations during arrival phase of flight.		
APG 4.1.2.1: AR-12-5	Develop Initial Weather Translation Models.	Airspace Systems	Aeronautics
APG 4.1.2.1: AR-12-6	Demonstrate safe Interval Management Procedures to a Single Airport with dependent parallel runways.	Airspace Systems	Aeronautics

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Measure #	Description	Contributing Program (s)	Contributing Theme
APG 4.1.2.1: AR-12-7	NASA will provide the results of the human-in-the-loop (HITL) simulations and the field trial to the Federal Aviation Administration (FAA) as they are completed, with the final report being provided in September 2012. (HPPG milestone)	Airspace Systems	Aeronautics
Objective 4.1.3	Develop tools, technologies, and knowledge that enable significantly improved performance and new capabilities for future air vehicles.		
Performance Goal 4.1.3.1	Deliver tools, technologies, and knowledge that can be used to more efficiently and effectively design future air vehicles and their components that overcome national performance and capability challenges.		
APG 4.1.3.1: AR-12-10	Validate the effectiveness of Micro-array Flow Control devices for improving performance and flow quality in low-boom supersonic propulsion inlets.	Fundamental Aeronautics	Aeronautics
APG 4.1.3.1: AR-12-11	Demonstrate First Generation Integrated Multidisciplinary Simulation Tool for Analysis and Design of Reusable Air-Breathing Launch Vehicles.	Fundamental Aeronautics	Aeronautics
APG 4.1.3.1: AR-12-8	Characterize gaseous and particulate emissions of hydro treated renewable jet fuel as a potential carbon dioxide (CO2) neutral aviation fuel.	Fundamental Aeronautics	Aeronautics
APG 4.1.3.1: AR-12-9	Demonstrate drag reduction benefits of active flow control for a representative rotorcraft fuselage configuration.	Fundamental Aeronautics	Aeronautics
Outcome 4.2	Conduct systems-level research on innovative and promising aeronautics concepts and technologies to demonstrate integrated capabilities and benefits in a relevant flight and/or ground environment.		
Objective 4.2.1	Develop advanced tools and technologies that reduce the technical risk associated with system-level integration of promising aeronautical concepts.		
Performance Goal 4.2.1.1	Reduce technical risk by conducting research at an integrated system-level on promising aeronautical concepts and technologies in a relevant environment.		
APG 4.2.1.1: AR-12-12	Demonstrate low-weight, damage-tolerant stitched composite structural concept on curved panel subjected to combined tension and internal pressure loads.	Integrated Systems Research	Aeronautics
APG 4.2.1.1: AR-12-13	Develop integrated Human Systems Integration, Communications, and Separation Assurance subproject test concept and Phase 2 test objectives necessary to achieve human-in-the-loop simulation and flight test series milestones supporting the Unmanned Aircraft Systems (UAS) Integration in the National Airspace System (NAS) Project.	Integrated Systems Research	Aeronautics

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Measure #	Description	Contributing Program (s)	Contributing Theme
Strategic Goal 5	Enable program and institutional capabilities to conduct NASA's aeronautics and space activities.		
Outcome 5.1	Identify, cultivate, and sustain a diverse workforce and inclusive work environment that is needed to conduct NASA missions.		
Objective 5.1.1	Establish and maintain a workforce that possesses state-of-the-art technical and business management competencies.		
Performance Goal 5.1.1.1	Define and build the federal workforce skills and competencies needed for the Agency's future directions in technology development and deep space exploration.		
APG 5.1.1.1: AMO-12-1	Ninety percent of Shuttle workforce is assigned to follow-on work by FY 2012 year-end.	Agency Management	Agency Management and Operations
APG 5.1.1.1: AMO-12-2	Twenty percent or more of annual recruitments will be through the early career hiring initiatives.	Agency Management	Agency Management and Operations
Performance Goal 5.1.1.2	Build skills across all levels of the workforce through Leadership Development Opportunities.		
APG 5.1.1.2: AMO-12-3	Install an Agency-wide mentoring program that includes an automated system for matching mentors and mentees.	Agency Management	Agency Management and Operations
APG 5.1.1.2: AMO-12-4	Eighty percent of the Agency's leadership training and development programs include "leading through transformation" content.	Agency Management	Agency Management and Operations
Performance Goal 5.1.1.3	Achieve and sustain an effective labor-management dialogue.		
APG 5.1.1.3: AMO-12-5	Identify and address at least three significant labor-management challenges identified during the year during periodic Agency-led Labor Management Forums.	Agency Management	Agency Management and Operations
Performance Goal 5.1.1.4	Adopt and respond to innovative employee feedback mechanisms.		
APG 5.1.1.4: AMO-12-6	Seventy-five percent of NASA's primary installations implement improvement initiatives derived from the Federal Employee Viewpoint Survey.	Agency Management	Agency Management and Operations
Performance Goal 5.1.1.5	Establish and maintain a workplace environment free of illegal discrimination, harassing conduct, and retaliation for Equal Employment Opportunity (EEO) activity and that provides reasonable accommodations to individuals with disabilities.		
APG 5.1.1.5: AMO-12-7	Complete all FY 2012 actions described in the NASA Model Equal Employment Opportunity (EEO) Agency Plan.	Agency Management	Agency Management and Operations

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Measure #	Description	Contributing Program (s)	Contributing Theme
Performance Goal 5.1.1.6	Implement an Agency-wide Diversity and Inclusion Framework to develop a more demographically diverse workforce and a more inclusive work environment.		
APG 5.1.1.6: AMO-12-8	Adopt diversity improvement targets derived from the results of the Agency-wide diversity-inclusion survey and other relevant workforce and U.S. population data.	Agency Management	Agency Management and Operations
Objective 5.1.2	Provide opportunities and support systems that recruit, retain, and develop undergraduate and graduate students in STEM-related disciplines.		
Performance Goal 5.1.2.1	Assure that student participants in NASA higher education projects are representative of the diversity of the Nation.		
APG 5.1.2.1: ED-12-1	Achieve 40 percent participation of underserved and underrepresented (in race and/or ethnicity) in NASA higher education projects.	STEM Education and Accountability	Education
APG 5.1.2.1: ED-12-2	Achieve 45 percent participation of women in NASA higher education projects.	STEM Education and Accountability	Education
Outcome 5.2	Ensure vital assets are ready, available, and appropriately sized to conduct NASA's missions.		
Objective 5.2.1	Achieve mission success by factoring safety, quality, risk, reliability, and maintainability as integral features of programs, projects, technologies, operations, and facilities.		
Performance Goal 5.2.1.1	Through 2015, assure zero fatalities or permanent disabling injuries to the public.		
APG 5.2.1.1: AMO-12-9	Assure zero fatalities or permanent disabling injuries to the public resulting from NASA activities during the fiscal year.	Safety and Mission Success	Agency Management and Operations
Performance Goal 5.2.1.2	By 2015, achieve a four percent reduction in the total case rate and lost time rate for the NASA civil service work force.		
APG 5.2.1.2: AMO-12-10	Reduce Total Case Rate and Lost Time Case Rate by one percent, in accordance with the President's Protecting Our Workers and Ensuring Reemployment (POWER) initiative.	Safety and Mission Success	Agency Management and Operations
Performance Goal 5.2.1.3	By 2015, reduce damage to NASA assets by eight percent from the 2010 baseline.		
APG 5.2.1.3: AMO-12-11	Reduce damage to NASA assets by two percent per fiscal year, based on a five-year running average.	Safety and Mission Success	Agency Management and Operations

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 5.2.2	Provide information technology that advances NASA space and research program results and promotes open dissemination through efficient, innovative, reliable, and responsive services that are appropriately secure and valued by stakeholders and the public.		
Performance Goal 5.2.2.1	By 2014, consolidate and centralize the management of information technology (IT) enterprise services for end user services, communications, enterprise applications, enterprise data centers, and web services.		
APG 5.2.2.1: AMO-12-12	Achieve Initial Operating Capability (IOC) for one Service Office (NASA Enterprise Data Center) and FOC for the initial five Service Offices as part of the NASA Information Technology Infrastructure Integration Program (I3P).	Agency IT Services (AITS)	Agency Management and Operations
Performance Goal 5.2.2.2	By 2015, implement a capability to identify and prevent unauthorized intrusions on the NASA institutional and mission networks.		
APG 5.2.2.2: AMO-12-13	Implement intrusion detection sensors monitored by the NASA Security Operations Center (SOC) on 75 percent of NASA institutional network monitoring sites.	Agency IT Services (AITS)	Agency Management and Operations
Performance Goal 5.2.2.3	By 2014, decommission the Agency Administrative mainframe computer.		
APG 5.2.2.3: AMO-12-14	Migrate or retire all administrative systems from the Agency Administrative mainframe computer.	Agency IT Services (AITS)	Agency Management and Operations
Performance Goal 5.2.2.4	By 2015, reduce data center energy consumption by 30 percent.		
APG 5.2.2.4: AMO-12-15	Reduce the number of NASA data centers by 10 percent.	Agency IT Services (AITS)	Agency Management and Operations
Performance Goal 5.2.2.5	By 2015, establish at least four innovation laboratories that provide more effective, efficient, and responsive information technology (IT) across NASA in support of the Agency's Mission.		
APG 5.2.2.5: AMO-12-16	Implement a Communications and Collaboration Lab that conducts five evaluations to assess new approaches for the dissemination of information, and real-time, multi-participant knowledge creation and management.	Agency IT Services (AITS)	Agency Management and Operations

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 5.2.3	Develop and implement long-range infrastructure plans that address institutional capabilities and critical assets, directly link to mission needs, ensure the leveraging of external capabilities, and provide a framework for Agency infrastructure decision-making.		
Performance Goal 5.2.3.1	<i>Consolidate functions and offices to reduce real property need, and use Agency Integrated Master Plan to identify and dispose of excess and aged facilities beyond useful life.</i>		
APG 5.2.3.1: AMO-12-17	Finalize remaining Center Master Plans into the Agency Integrated Master Plan.	Agency Management	Agency Management and Operations
APG 5.2.3.1: COF-12-1	Initiate facilities demolition process for five significant Agency facilities in addition to demolition processes initiated in FY 2011.	Institutional CoF	Construction of Facilities
Performance Goal 5.2.3.2	<i>HPPG: Conserve valuable natural resources by reducing NASA's energy and water use.</i>		
APG 5.2.3.2: ECR-12-1	Reduce energy intensity use annually by three percent from an FY 2003 baseline.	Environmental Compliance and Restoration	Environmental Compliance and Restoration
APG 5.2.3.2: ECR-12-2	Reduce potable water use annually by two percent from an FY 2007 baseline.	Environmental Compliance and Restoration	Environmental Compliance and Restoration
APG 5.2.3.2: ECR-12-3	Reduce fleet vehicle energy use annually by two percent of petroleum products from an FY 2005 baseline.	Environmental Compliance and Restoration	Environmental Compliance and Restoration
Outcome 5.3	Ensure the availability to the Nation of NASA-owned, strategically important test capabilities.		
Objective 5.3.1	Work with the National Rocket Propulsion Test Alliance to identify NASA, Department of Defense and commercial capabilities and requirements.		
Performance Goal 5.3.1.1	<i>Develop and execute the Rocket Propulsion Test (RPT) Master Plan.</i>		
APG 5.3.1.1: SFS-12-1	Meet Rocket Propulsion Test (RPT) Master Plan requirements for year one.	Rocket Propulsion Test	Space and Flight Support (SFS)
Objective 5.3.2	Ensure that Aeronautics Test Program (ATP) facilities are available and capable of supporting research, development, test and engineering goals and objectives for NASA and national aerospace programs.		
Performance Goal 5.3.2.1	<i>Ensure that testing capabilities are available in order to support the research, development, test, and engineering milestones of NASA and Department of Defense (DoD) programs.</i>		
APG 5.3.2.1: AR-12-14	Achieve ratings greater than 86 percent for overall quality and timeliness of Aeronautics Test Program (ATP) facility operations.	Aeronautics Test	Aeronautics

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Measure #	Description	Contributing Program (s)	Contributing Theme
Outcome 5.4	Implement and provide space communications and launch capabilities responsive to existing and future science and space exploration missions.		
Objective 5.4.1	Ensure reliable and cost-effective access to space for missions critical to achieving the National Space Policy of the United States of America.		
Performance Goal 5.4.1.1	<i>Complete Launch Services Program (LSP) objectives for all NASA-managed expendable launches.</i>		
APG 5.4.1.1: SFS-12-2	Sustain 100 percent success rate with the successful launch of NASA-managed expendable launches as identified on the Launch Services Flight Planning Board manifest.	Launch Services	Space and Flight Support (SFS)
Performance Goal 5.4.1.2	<i>Continue utilizing existing contract mechanisms and agreements with emerging launch vehicle providers to gain information for future Launch Service orders and to provide technical exchanges to enhance early launch success.</i>		
APG 5.4.1.2: SFS-12-3	Incorporate information sharing processes into programmatic policies and incorporate into crew demonstration activities and future crew transportation service contracts.	Launch Services	Space and Flight Support (SFS)
Objective 5.4.2	Transform the Florida launch and range complex to provide a robust launch and range infrastructure for future users.		
Performance Goal 5.4.2.1	<i>By FY 2014, enable future government and commercial launching and testing from the Florida launch and range complex.</i>		
APG 5.4.2.1: SFS-12-4	Implement FY 2012 milestones within the 21st Century Space Launch Complex (21st CSLC) plan.	21st Century Space Launch Complex	Space and Flight Support (SFS)
Objective 5.4.3	Build and maintain a scalable, integrated, mission support infrastructure that can readily evolve to accommodate new and changing technologies, while providing integrated, comprehensive, robust, and cost-effective space communications services at order-of-magnitude higher data rates to enable NASA's science and exploration missions.		
Performance Goal 5.4.3.1	<i>By 2014, launch two functionally identical Tracking and Data Relay Satellite (TDRS) spacecraft in geosynchronous orbits to replenish the Tracking and Data Relay Satellite System (TDRSS) constellation.</i>		
APG 5.4.3.1: SFS-12-5	Complete Tracking and Data Relay Satellite (TDRS) K Pre-ship review.	Space Communications and Navigation	Space and Flight Support (SFS)

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Measure #	Description	Contributing Program (s)	Contributing Theme
Performance Goal 5.4.3.2	<i>By FY 2016, replace or upgrade obsolete and unsustainable systems of the Tracking and Data Relay Satellite System (TDRSS) Ground Segment at the White Sands Complex (WSC).</i>		
APG 5.4.3.2: SFS-12-6	Complete the Space Network Ground Segment Sustainment (SGSS) Preliminary Design Review (PDR).	Space Communications and Navigation	Space and Flight Support (SFS)
Performance Goal 5.4.3.3	<i>By FY 2018, replace aging and obsolete Deep Space Network (DSN) 70-meter antenna at Canberra Deep Space Communications Complex (CDSCC).</i>		
APG 5.4.3.3: SFS-12-7	Complete Deep Space Station-35 (DSS-35) antenna fabrication at vendor.	Space Communications and Navigation	Space and Flight Support (SFS)
Outcome 5.5	Establish partnerships, including innovative arrangements, with commercial, international, and other government entities to maximize mission success.		
Objective 5.5.1	Facilitate the use of the ISS as a National Laboratory for cooperative research, technology development, and education.		
Performance Goal 5.5.1.1	<i>HPPG: Establish an independent non-profit (NPO) organization to enhance the utilization of the ISS as a National Laboratory.</i>		
APG 5.5.1.1: ISS-12-7	Facilitate non-profit organization (NPO) implementation of its initial grants solicitation process.	International Space Station Program	International Space Station
Objective 5.5.2	Enhance international and interagency partnerships through increased use of international and interagency coordination mechanisms.		
Performance Goal 5.5.2.1	<i>Actively engage and provide leadership in international and interagency forums.</i>		
APG 5.5.2.1: AMO-12-18	Establish an internal Interagency Partnerships Working Group (IPWG) led by the Office of International and Interagency Relations (OIIR) to improve Agency-wide coordination of interagency partnerships and related interagency working groups.	Agency Management	Agency Management and Operations

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Measure #	Description	Contributing Program (s)	Contributing Theme
Strategic Goal 6	Share NASA with the public, educators, and students to provide opportunities to participate in our Mission, foster innovation and contribute to a strong national economy.		
Outcome 6.1	Improve retention of students in STEM disciplines by providing opportunities and activities along the full length of the education pipeline.		
Objective 6.1.1	Provide quality STEM curricular support resources and materials.		
<i>Performance Goal 6.1.1.1</i>	<i>Provide educators nationwide with knowledge and tools with which to inspire students in STEM fields.</i>		
APG 6.1.1.1: ED-12-3	100,000 educators participate in NASA education programs.	STEM Education and Accountability	Education
Objective 6.1.2	Provide NASA experiences that inspire student interest and achievement in STEM disciplines.		
<i>Performance Goal 6.1.2.1</i>	<i>Provide higher education students with authentic NASA mission-based opportunities that build knowledge and skills needed for STEM careers.</i>		
APG 6.1.2.1: ED-12-4	25,000 undergraduate and graduate students participate in NASA education opportunities.	STEM Education and Accountability	Education
<i>Performance Goal 6.1.2.2</i>	<i>Provide elementary and secondary students with authentic NASA mission-based opportunities that build STEM knowledge, skills, and career awareness.</i>		
APG 6.1.2.2: ED-12-5	600,000 elementary and secondary students participate in NASA instructional and enrichment activities.	STEM Education and Accountability	Education
APG 6.1.2.2: ED-12-6	85 percent of elementary and secondary students express interest in STEM careers following their involvement in NASA education programs.	STEM Education and Accountability	Education
Objective 6.1.3	Assess grant recipient institutions throughout the education pipeline to ensure that grant recipients demonstrate a consistent commitment to civil rights compliance.		
<i>Performance Goal 6.1.3.1</i>	<i>Promote equal opportunity compliance and encourage promising practices among NASA grant recipient institutions through a fully-realized program of civil rights compliance reviews, policy guidance, and technical assistance.</i>		
APG 6.1.3.1: AMO-12-19	Equal opportunity (EO) assessment and technical assistance provided, or onsite compliance assessment performed, on-location at five STEM or STEM-related programs that receive NASA funding.	Agency Management	Agency Management and Operations

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Measure #	Description	Contributing Program (s)	Contributing Theme
Outcome 6.2	Promote STEM literacy through strategic partnerships with formal and informal organizations.		
Objective 6.2.1	Develop NASA's leadership role in national STEM improvement efforts, as demonstrated by provision of meaningful educator professional development and student experiences, adoption of education technologies, and contributions to STEM education policies and strategies.		
Performance Goal 6.2.1.1	<i>Provide educator professional development experiences and materials that align to needs and opportunities identified by districts, states, Department of Education, professional organizations, and other stakeholders.</i>		
APG 6.2.1.1: ED-12-7	5,000 educators use NASA resources in their curricula after participating in NASA professional development.	STEM Education and Accountability	Education
Performance Goal 6.2.1.2	<i>Provide expertise in the development of STEM education policies and strategies.</i>		
APG 6.2.1.2: ED-12-8	Provide expertise to support the development of integrated science and engineering standards.	STEM Education and Accountability	Education
Outcome 6.3	Engage the public in NASA's missions by providing new pathways for participation.		
Objective 6.3.1	Extend the reach of participatory engagement across NASA.		
Performance Goal 6.3.1.1	<i>By 2015, establish an Agency-wide portfolio of participatory engagement opportunities.</i>		
APG 6.3.1.1: AMO-12-20	Issue a competitive opportunity to engage the public in NASA's activities.	Agency Management	Agency Management and Operations
Outcome 6.4	Inform, engage, and inspire the public by sharing NASA's missions, challenges, and results.		
Objective 6.4.1	Use strategic partnerships with formal and informal educational organizations to provide NASA content to promote interest in STEM.		
Performance Goal 6.4.1.1	<i>Leverage communities of practice to facilitate sharing of NASA successes and challenges with the public.</i>		
APG 6.4.1.1: ED-12-9	450 museums and science centers across the country actively engage the public in major NASA events.	STEM Education and Accountability	Education

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Measure #	Description	Contributing Program (s)	Contributing Theme
Objective 6.4.2	Provide clear, accurate, timely, and consistent information that is readily available and suitable for a diverse audience.		
<i>Performance Goal 6.4.2.1</i>	<i>Use current and emerging communications technologies to reach increasingly broad audiences.</i>		
APG 6.4.2.1: AMO-12-21	Evaluate communication tools for impact and establish Agency best practices.	Agency Management	Agency Management and Operations
Objective 6.4.3	Provide the communications infrastructure to enable NASA's commitment to make government more open, transparent, and participatory.		
<i>Performance Goal 6.4.3.1</i>	<i>Make available Agency records through the Freedom of Information (FOIA) and Privacy Act and Open Gov in accordance with federal laws and regulations.</i>		
APG 6.4.3.1: AMO-12-22	Finalize NASA Freedom of Information Act (FOIA) regulations."	Agency Management	Agency Management and Operations

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Uniform and Efficiency Measures

Measure #	Description
International Space Station Theme	
APG EFF 1.1.1.4: ISS-12-3	Provide 100 percent of planned on-orbit resources (including power, data, crew time, logistics, and accommodations) needed to support research.
APG EFF 1.1.2.1: ISS-12-6	Accomplish a minimum of 90 percent of the on-orbit research objectives as established one month prior to a given increment, as sponsored by NASA, baselined for FY 2012.
Earth Science Theme	
APG EFF 2.1.7.1: ES-12-16	Increase the number of science data products delivered to Earth Observing System Data and Information System (EOSDIS) users.
APG EFF 2.1.7.1: ES-12-17	Maintain a high level of customer satisfaction, as measured by exceeding the most recently available federal government average rating of the Customer Satisfaction Index.
APG EFF: ES-12-20	Complete all development projects within 110 percent of the cost and schedule baseline.
APG EFF: ES-12-21	Deliver at least 90 percent of scheduled operating hours for all operations and research facilities.
APG EFF: ES-12-22	Peer-review and competitively award at least 90 percent, by budget, of research projects.
APG EFF: ES-12-23	Reduce time within which 80 percent of NASA Research Announcement (NRA) grants are awarded, from proposal due date to selection, by four percent per year, with a goal of 180 days.
Space Technology Theme	
APG EFF 3.4.1.5: ST-12-17	Ensure that 75 percent of all NASA technology projects are recorded in the portfolio database and are analyzed against the prioritizations in the space technology roadmaps.
Agency Management and Operations Theme	
APG EFF 5.2.1.2: AMO-12-10	Reduce Total Case Rate and Lost Time Case Rate by one percent, in accordance with the President's Protecting Our Workers and Ensuring Reemployment (POWER) initiative.
APG EFF 5.2.1.3: AMO-12-11	Reduce damage to NASA assets by two percent per fiscal year, based on a five-year running average.
APG EFF: AMO-12-20	Maintain system execution time during the year-end close process at FY 2010 baseline.
Environmental Compliance and Restoration Theme	
APG EFF 5.2.3.2: ECR-12-1	Reduce energy intensity use annually by three percent from an FY 2003 baseline.
APG EFF 5.2.3.2: ECR-12-2	Reduce potable water use annually by two percent from an FY 2007 baseline.
APG EFF 5.2.3.2: ECR-12-3	Reduce fleet vehicle energy use annually by two percent of petroleum products from an FY 2005 baseline.
Aeronautics Theme	
APG EFF: AR-12-16	Deliver at least 86 percent of on-time availability for operations and research facilities.
Astrophysics Theme	
APG EFF: AS-12-6	Complete all development projects within 110 percent of the cost and schedule baseline.

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Uniform and Efficiency Measures

Measure #	Description
APG EFF: AS-12-7	Deliver at least 90 percent of scheduled operating hours for all operations and research facilities.
APG EFF: AS-12-8	Peer-review and competitively award at least 95 percent, by budget, of research projects.
APG EFF: AS-12-9	Reduce time within which 80 percent of NASA Research Announcement (NRA) grants are awarded, from proposal due date to selection, by four percent per year, with a goal of 180 days.
Heliophysics Theme	
APG EFF: HE-12-6	Complete all development projects within 110 percent of the cost and schedule baseline.
APG EFF: HE-12-7	Deliver at least 90 percent of scheduled operating hours for all operations and research facilities.
APG EFF: HE-12-8	Peer-review and competitively award at least 90 percent, by budget, of research projects.
APG EFF: HE-12-9	Reduce time within which 80 percent of NASA Research Announcement (NRA) grants are awarded, from proposal due date to selection, by four percent per year, with a goal of 180 days.
Planetary Science Theme	
APG EFF: PS-12-14	Complete all development projects within 110 percent of the cost and schedule baseline.
APG EFF: PS-12-15	Deliver at least 90 percent of scheduled operating hours for all operations and research facilities.
APG EFF: PS-12-16	Peer-review and competitively award at least 95 percent, by budget, of research projects.
APG EFF: PS-12-17	Reduce time within which 80 percent of NASA Research Announcement (NRA) grants are awarded, from proposal due date to selection, by four percent per year, with a goal of 180 days.

Multi-Year Ratings Trends

Under NASA's previous performance framework (based on NASA's 2006 Strategic Plan), NASA provided performance measure trend data at the multi-year outcome level. To provide continued performance trend information, a separate table is included below to reflect trend information at the objective level in NASA's new performance framework, which most closely tracks to the previous multi-year outcome level in the previous framework. In several cases, multiple outcomes relate to a single objective. For more information on previous years' performance ratings and measures from FY 2006 to FY 2010, please visit <http://www.nasa.gov/news/budget/index.html>.

NASA previously rated multiyear outcomes based on the following definitions:

Green: NASA achieved most APGs under this outcome and is on-track to achieve or exceed this outcome.

Yellow: NASA made significant progress toward this outcome, however, the Agency may not achieve this outcome as stated.

Red: NASA failed to achieve most of the APGs under this outcome and does not expect to achieve this outcome as stated.

White: This outcome was cancelled by management directive or is no longer applicable based on management changes to the APGs.

None: The stated outcome did not exist in the years indicated.

2011 Strategic Plan Objectives		FY 2010	FY 2009	FY 2008	FY 2007
1.1.1	Maintain resources (on-orbit and on the ground) to operate and utilize the ISS.	2.2 Green	2.2 Green	2.2 Green	2.2 Green
1.1.2	Advance engineering, technology, and research capabilities on the ISS.	2.1 Green	2.1 Green	2.1 Green	2.1 Green
		2.3 Green	2.3 Green	2.3 Green	None
1.2.1	Enable the commercial sector to provide cargo and crew services to the International Space Station (ISS).	5.2 Yellow	5.2 Green	5.2 Green	5.2 Green
1.3.1	Execute development of an integrated architecture to conduct human space exploration missions beyond low Earth orbit.	6.4 White	6.5 Green	6.5 Green	None
1.3.2	Develop a robust biomedical research portfolio to mitigate space human health risks.	2.3 Green	2.3 Green	2.3 Green	None
1.3.3	Identify hazards, opportunities and potential destinations, to support future safe and successful human space exploration missions.	3B.3 Green	3B.3 Green	3B.3 Green	3B.3 Green
		3C.3 Green	3C.3 Green	3C.3 Green	3C.3 Green
		3C.4 Green	3C.4 Green	3C.4 Green	3C.4 Green
		6.4 White	6.5 Green	6.5 Green	None
2.1.1	Improve understanding of and improve the predictive capability for changes in the ozone layer, climate forcing, and air quality associated with changes in atmospheric composition.	3A.1 Green	3A.1 Green	3A.1 Green	3A.1 Green
2.1.2	Enable improved predictive capability for weather and extreme weather events.	3A.2 Green	3A.2 Green	3A.2 Green	3A.2 Green
2.1.3	Quantify, understand, and predict changes in Earth's ecosystems and biogeochemical cycles, including the global carbon cycle, land cover, and biodiversity.	3A.3 Green	3A.3 Green	3A.3 Green	3A.3 Green
2.1.4	Quantify the key reservoirs and fluxes in the global water cycle and assess water cycle change and water quality.	3A.4 Green	3A.4 Green	3A.4 Green	3A.4 Green
2.1.5	Improve understanding of the roles of the ocean, atmosphere, land and ice in the climate system and improve predictive capability for its future evolution.	3A.5 Green	3A.5 Green	3A.5 Yellow	3A.5 Yellow
2.1.6	Characterize the dynamics of Earth's surface and interior and form the scientific basis for the assessment and mitigation of natural hazards and response to rare and extreme events.	3A.6 Green	3A.6 Green	3A.6 Green	3A.6 Green
		3A.2 Green	3A.2 Green	3A.2 Green	3A.2 Green
2.1.7	Enable the broad use of Earth system science observations and results in decision-making activities for societal benefits.	3A.7 Green	3A.7 Green	3A.7 Green	3A.7 Green

2011 Strategic Plan Objectives		FY 2010	FY 2009	FY 2008	FY 2007
2.2.1	Improve understanding of the fundamental physical processes of the space environment from the Sun to Earth, to other planets, and beyond to the interstellar medium.	3B.1 Green	3B.1 Green	3B.1 Green	3B.1 Green
2.2.2	Improve understanding of how human society, technological systems, and the habitability of planets are affected by solar variability interacting with planetary magnetic fields and atmospheres.	3B.2 Green	3B.2 Green	3B.2 Green	3B.2 Green
2.2.3	Maximize the safety and productivity of human and robotic explorers by developing the capability to predict extreme and dynamic conditions in space.	3B.3 Green	3B.3 Green	3B.3 Green	3B.3 Green
2.3.1	Inventory solar system objects and identify the processes active in and among them.	3C.2 Green	3C.2 Green	3C.2 Green	3C.2 Green
2.3.2	Improve understanding of how the Sun's family of planets, satellites, and minor bodies originated and evolved.	3C.1 Green	3C.1 Green	3C.1 Green	3C.1 Green
2.3.3	Improve understanding of the processes that determine the history and future of habitability of environments on Mars and other solar system bodies.	3C.3 Green	3C.3 Green	3C.3 Green	3C.3 Green
2.3.4	Improve understanding of the origin and evolution of Earth's life and biosphere to determine if there is or ever has been life elsewhere in the universe.	3C.2Green	3C.2Green	3C.2Green	3C.2Green
2.3.5	Identify and characterize small bodies and the properties of planetary environments that pose a threat to terrestrial life or exploration or provide potentially exploitable resources.	3B.3 Green	3B.3 Green	3B.3 Green	3B.3 Green
		3C.4 Green	3C.4 Green	3C.4 Green	3C.4 Green
2.4.1	Improve understanding of the origin and destiny of the universe, and the nature of black holes, dark energy, dark matter, and gravity.	3D.1 Green	3D.1 Green	3D.1 Green	3D.1 Green
2.4.2	Improve understanding of the many phenomena and processes associated with galaxy, stellar, and planetary system formation and evolution from the earliest epochs to today.	3D.2 Green	3D.2 Green	3D.2 Green	3D.2 Green
2.4.3	Generate a census of extra-solar planets and measure their properties.	3D.4 Green	3D.4 Green	3D.4 Green	3D.4 Yellow
3.1.1	Create a pipeline of new low Technology Readiness Levels (TRL) innovative concepts and technologies for future NASA missions and national needs.	None	None	None	None
3.2.1	Prove the technical feasibility of potentially disruptive new space technologies for future missions.	None	None	None	None
3.2.2	Spur the development of routine, low-cost access to space through small payloads and satellites.	None	None	None	None
3.2.3	Demonstrate new space technologies and infuse them into future science and exploration small satellite missions and/or commercial use.	None	None	None	None
3.2.4	Demonstrate new space technologies and infuse them into missions.	5.3 Green	None	5.3 Green	5.3 Green

Management and Performance

2011 Strategic Plan Objectives		FY 2010	FY 2009	FY 2008	FY 2007
3.2.5	Provide flight opportunities and relevant environments to demonstrate new space technologies.	5.1 Green	5.1 Green	5.1 Green	5.1 Green
3.3.1	Demonstrate in-space operations of robotic assistants working with crew.	None	None	None	None
3.3.2	Develop and demonstrate critical technologies for safe and affordable cargo and human space exploration missions beyond low Earth orbit.	6.2 Green	6.2 Green	6.2 Green	6.2 Green
		6.3 Green	6.3 Green	6.3 Green	None
3.4.1	Promote and develop innovative technology partnerships among NASA, U.S. industry, and other sectors for the benefit of Agency programs and projects and national interests.	5.3 Green	None	5.3 Green	5.3 Green
4.1.1	Develop advanced technologies to improve the overall safety of the future air transportation system.	3E.1 Green	3E.1 Green	3E.1 Green	3E.1 Green
4.1.2	Develop innovative solutions and technologies to meet future capacity and mobility requirements of the Next Generation Air Transportation System (NextGen).	3E.2 Green	3E.2 Green	3E.2 Green	3E.2 Green
4.1.3	Develop tools, technologies, and knowledge that enable significantly improved performance and new capabilities for future air vehicles.	3E.3 Green	3E.3 Green	3E.3 Green	3E.3 Green
4.2.1	Develop advanced tools and technologies that reduce the technical risk associated with system-level integration of promising aeronautical concepts.	3E.5 Yellow	3E.5 Yellow	3E.5 Yellow	3E.5 Yellow
5.1.1	Establish and maintain a workforce that possesses state-of-the-art technical and business management competencies.	AS.2 Green	None	None	None
5.1.2	Provide opportunities and support systems that recruit, retain, and develop undergraduate and graduate students in STEM-related disciplines.	ED.1 Green	ED.1 Green	ED.1 Green	ED.1 Green
		ED.2 Green	ED.2 Green	ED.2 Green	None
5.2.1	Achieve mission success by factoring safety, quality, risk, reliability and maintainability as integral features of programs, projects, technologies, operations, and facilities.	AS.4 Green	None	None	None
5.2.2	Provide information technology that advances NASA space and research program results and promotes open dissemination through efficient, innovative, reliable, and responsive services that are appropriately secure and valued by stakeholders and the public.	AS.1 Green	None	None	None
5.2.3	Develop and implement long-range infrastructure plans that address institutional capabilities and critical assets, directly link to mission needs, ensure the leveraging of external capabilities, and provide a framework for Agency infrastructure decision-making.	AS.3 Green	None	None	None
5.3.1	Work with the National Rocket Propulsion Test Alliance to identify NASA, Department of Defense	AS.5 Green	6.4 Green	6.4 Green	6.4 Green

2011 Strategic Plan Objectives		FY 2010	FY 2009	FY 2008	FY 2007
	and commercial capabilities and requirements.	5.1 Green	5.1 Green	5.1 Green	5.1 Green
5.3.2	Ensure that Aeronautics Test Program (ATP) facilities are available and capable of supporting research, development, test and evaluation goals and objectives for NASA and national aerospace programs.	3E.4 Green	3E.4 Green	3E.4 Green	3E.4 Green
5.4.1	Ensure reliable and cost-effective access to space for missions critical to achieving the National Space Policy of the United States of America.	AS.5 Green	6.4 Green	6.4 Green	6.4 Green
		5.1 Green	5.1 Green	5.1 Green	5.1 Green
5.4.2	Transform the Florida launch and range complex to provide a robust launch and range infrastructure for future users.	AS.5 Green	6.4 Green	6.4 Green	6.4 Green
5.4.3	Build and maintain a scalable, integrated, mission support infrastructure that can readily evolve to accommodate new and changing technologies, while providing integrated, comprehensive, robust, and cost-effective space communications services at order-of-magnitude higher data rates to enable NASA's science and exploration missions.	AS.5 Green	6.4 Green	6.4 Green	6.4 Green
5.5.1	Facilitate the use of the ISS as a National Laboratory for cooperative research, technology development, and education.	None	None	None	None
5.5.2	Enhance international and interagency partnerships through increased use of international and interagency coordination mechanisms.	6.4 White	6.5 Green	6.5 Green	None
6.1.1	Provide quality STEM curricular support resources and materials.	ED.2 Green	ED.2 Green	ED.2 Green	None
6.1.2	Provide NASA experiences that inspire student interest and achievement in STEM disciplines.	ED.2 Green	ED.2 Green	ED.2 Green	None
6.1.3	Assess grant recipient institutions throughout the education pipeline to ensure that grant recipients demonstrate a consistent commitment to civil rights compliance.	ED.1 Green	ED.1 Green	ED.1 Green	ED.1 Green
6.2.1	Develop NASA's leadership role in national STEM improvement efforts, as demonstrated by provision of meaningful educator professional development and student experiences, adoption of education technologies, and contributions to STEM education policies and strategies.	ED.1 Green	ED.1 Green	ED.1 Green	ED.1 Green
6.3.1	Extend the reach of participatory engagement across NASA.	None	None	None	None
6.4.1	Use strategic partnerships with formal and informal educational organizations to provide NASA content to promote interest in STEM.	ED.3 Green	ED.3 Green	ED.3 Green	ED.3 Green
6.4.2	Provide clear, accurate, timely, and consistent information that is readily available and suitable for a diverse audience.	None	None	None	None

Management and Performance

2011 Strategic Plan Objectives		FY 2010	FY 2009	FY 2008	FY 2007
6.4.3	Provide the communications infrastructure to enable NASA's commitment to make government more open, transparent, and participatory.	None	None	None	None